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[Claim 1]

An image displaying system comprising:

a bio-information acquiring device including a measuring means for measuring bio-information on a person under measurement and a sending means for sending the bio-information; and

an image display device including a receiving means for receiving the bio-information, an image generating means for generating an image on the basis of the bio-information and a display means for displaying the image, wherein

the bio-information acquiring device and image display device are located in 2 different places, respectively, and connected to each other via a network.

[Claim 2]

The system according to claim 1, wherein the image generating means generates an image representing the condition of the person under measurement.

[Claim 3]

The system according to claim 1, wherein:

the bio-information acquiring device includes an environmental information measuring means for quantitatively measuring the environment around the person under measurement; and

the image generating means generates images representing the condition of the person under measurement and environment around the person on the basis of the bio-information and environmental information.

[Claim 4]

The system according to claim 1, further comprising a bio-information management device connected to a plurality of bio-information acquiring devices, the bio-information management device including:

a receiving means for receiving the bio-information acquired by the plurality of bio-information acquiring device;

a multiplexing means for multiplexing the bio-information acquired by the plurality of bio-information acquiring device; and

a sending means for sending the multiplexed bio-information to the image display device.

[Claim 5]

The system according to claim 4, wherein the image generation means receives the multiplexed bio-information, generates images representing the condition of each of the persons under measurement, and the displaying means displays the plurality of images simultaneously.

[Claim 6]

The system according to claim 1, wherein:

the image display device includes a read-out means for reading out information recorded in a recording medium; and the image generating means generates images representing the condition of the person under measurement and environment around the person on the basis of bio-information and environment information read by the read-out means.

[Claim 7]

The system according to claim 1, wherein the image display device includes a speech generating means for generating a speech representing the condition of the person under measurement on the basis of the bio-information and a speech output means for outputting the speech.

[Claim 8]

An image display device connected, via a network, to a bio-information acquiring device that acquires bio-information on a person under measurement, the device comprising:

a bio-information receiving means for receiving bio-information sent from the bio-information acquiring device;

an image generating means for generating an image on the basis of the bio-information; and

a displaying means for displaying the image.

[Claim 9]

The device according to claim 8, wherein:

the bio-information acquiring device includes an environmental information measuring means for quantitatively measuring the environment around the person under measurement; and

the image generating means generates images representing the condition of the person under measurement and environment around the person on the basis of the bio-information and environmental information.

[Claim 10]

The device according to claim 8, further comprising a read-out means for reading out information recorded in a recording medium,

the image generating means generates images representing the condition of the person under measurement and environment around the person on the basis of bio-information and environment information pre-recorded in the recording medium.

[Claim 11]

The device according to claim 8, wherein:

receiving the bio-information on a plurality of persons under measurement from a plurality of bio-information acquiring devices, the image generating means generates images representing the conditions of the persons under measurement; and

the displaying means displays the images representing the conditions of the persons under measurement simultaneously.

[Claim 12]

The device according to claim 11, wherein the image generating means generates images representing the conditions of the persons under measurement.

[Claim 13]

The device according to claim 8, further comprising a read-out means for reading out information recorded in a recording medium,

the image generating means generates images representing the condition of the person under measurement and environment around the person on the basis of bio-information and environment information pre-recorded in the recording medium.

[Claim 14]

A method of displaying an image, the method comprising the steps of:

acquiring bio-information on a person under measurement;

sending the bio-information to a remote device;

receiving the bio-information sent in the sending step;

generating an image on the basis of the bio-information received in the receiving step; and

displaying the image generated in the image step.

[Claim 15]

The method according to claim 14, further comprising the step of quantitatively measuring the environment around the person under measurement; and

in the image generating step, there being generated images representing the condition of the person under measurement on the basis of the bio-information and environmental information.

[Claim 16]

The method according to claim 14, wherein:

receiving the bio-information on a plurality of persons under measurement in the receiving step,

in the image generating step, the images representing the conditions of the persons under measurement are generated; and

in the displaying step, the images representing the conditions on a plurality of persons under measurement are displayed simultaneously.

[Designation of Document] Specification

[Title of the Invention] Image Display System, Image Display Method, Image Display Device

[Technical Field]

[0001]

The present invention relates to an image displaying system and method, for displaying the condition of a person under measurement in a visible form on a display device, and an image display device for displaying bio-information on a remote person under measurement in a visible form.

[Background Art]

[0002]

A person will have an increased heart rate when he or she is nervous, while having a stable heart rate when he or she is calm. The heart rate is a rhythm of heart contraction, and it is a parameter indicating the condition of a person. Data indicating the conditions of a person include respiration, brain wave, etc. in addition to the heart rate. These data are called "bio data" and utilized as parameters quantitatively indicating the conditions of a person in the fields of medicine and service. Also, environmental information quantitatively indicates ambient conditions such as temperature change, wind strength, etc. around a person. Similarly to the bio-information, the environmental information is utilized to know the conditions surrounding the person.

[0003]

A typical example of the apparatuses utilizing bio-information and environmental information, the apparatus is to acquire an electrocardiogram of a person under measurement in a bathtub and generate an image on the basis of the acquired electrocardiogram. This apparatus acquires an electrocardiogram as bio-information and the bathtub temperature as environmental information. An image varying as the information acquisition progresses is presented to the person under measurement of bio-information, and an electrocardiogram is acquired while the person is enjoying the image being displayed. (for example, see Patent Document 1)

[0004]

[Patent Document 1] JP-A-2002-282227

[Disclosure of the Invention]

[Problems that the Invention is to Solve]

[0005]

The invention disclosed in the above Patent Document 1 is intended to accurately acquire an electrocardiogram but is limited in kind of bio-information to be acquired and purpose of use. Also, this invention is to be used by a person under measurement to know his or her own electrocardiogram, but it cannot be used to inform the condition of the person to other people.

[0006]

As mentioned above, the bio-information and environmental information are characteristic of the affections, bodily condition, surroundings, etc. of the user. Based on bio-information and environmental information, the condition of a person under measurement can be informed to other people. However, since bio-information is provided as a numerical value, experiences and time are required to understand what the numerical value means. Also, vivid display of acquired information on a person under measurement is also a pain to the person. A camcorder may also be installed on part of the person under measurement or in a corner of an examination room to image the person. In this case, the condition of the person under measurement can be known at a glance but such an observation of the person will lead to invasion of his privacy.

[Means for Solving the Problems]

[0007]

In order to achieve the above-described object, according to the present invention, it is desirable to provide an image displaying device, and image displaying system and image displaying method, for displaying the condition of a person and environmental condition surrounding the person indefinitely determining physiological indices.

[0008]

According to the present invention, there is provided an image displaying system in which a bio-information acquiring device and image display device are disposed in 2 different places, respectively, and the bio-information acquiring device sends acquired information to the image display device via a network. The image display device generates an image representing the condition of a person under measurement on the basis of the received bio-information and displays the image.

[0009]

According to the present invention, there is also provided an image display device that receives bio-information sent from a bio-information acquiring device and generates an image representing the condition of a person under measurement on the basis of the received bio-information and displays the image. According to the present invention, there is also provided an image displaying method in which bio-information on a person under measurement is sent to a remote site and an image representing the condition of the person is generated based on the bio-information.

[Advantage of the Invention]

[0010]

According to the present invention, an image can be generated based on bio-information on a person under examination and information on the environment surrounding the person and the condition of the person can be displayed on the image display devices at a site remote from the person. According to the present invention, no real image is generated that represents the condition of a remote person under measurement but an image is provided which is generated based on the bio-information on the person and environment information around him. So, different from any high-precision images for medical use, the image generated according to the present invention can indefinitely represent the condition of the person under measurement and can be enjoyed. Namely, the image has an improved entertaining property.

[0011]

According to the present invention, the condition of a person under measurement can be displayed at a site remote from the person and can be known unconsciously at a remote site. Since the image display device indefinitely displays the condition of the person under measurement, no invasion will be made of the person's privacy.

[Best Mode for carrying out the Invention]

[0012]

The image display system according to the present invention includes that a bio-information acquiring device acquires bio-information on a person under measurement (will also be referred to simply as "person" hereunder) and information on the environment around the person, and supplies the acquired bio-information and environment information to an image display device located remote from the person. The image display device generates an image representing the condition of the person on the basis of the bio-information and environment information, and displays it. The image display system can transmit the condition of a person in a remote place by transmitting bio-information via a network.

[First Embodiment]

[0013]

The image display system 1 according to an embodiment of the present invention will be described. As shown in FIG. 1, the image display system 1 includes an electronic bio-information acquiring device 10 connectable to a network (will be referred to as "electronic device" hereunder), and an image display device 20 that receives and displays bio-information acquired by the electronic device. These are connected to each other via a network 100. The network 100 referred to herein is the so-called Internet. The electronic device 10 should desirably be an electronic device that can always be carried, such as a mobile phone, personal digital assistant (PDA) or the like. The electronic device 10 has a bio-sensor provided thereon in a position where the bio-sensor can efficiently acquire bio-information on the device user.

Here will be described an image display system in which the electronic device is a mobile phone 10.

[0014]

Note that the bio-sensor is built in the mobile phone 10 or provided separately from the mobile phone 10. The bio-sensor separate from the mobile phone 10 is installed on a chair, bed or any other electronic device for direct touch with a part of the person's body, which is referred to herein as type (11a). Alternatively, it is put directly on part of the person's body for detection of bio data, which is referred to herein as type (11b). According to the present invention, a camcorder (11c) to image the person and microphone to capture person's voice are included in the bio-sensors.

[0015]

The mobile terminal 10 shown in FIG. 2 includes a bio-sensor 11 to acquire bio-information, environment information sensor 12 to acquire environment information, ROM 13 (read-only memory) to store programs, information on settings, etc., RAM 14 (random-access memory) as a provisional storage area, CPU 15 (central processing unit) to make calculation according to the program stored in the ROM 13 and control the mobile terminal 10 as a whole, communications interface (I/F) 16 to make data communications according to an internet protocol and a bio-information receiver 17 to receive the bio-information from the external bio-sensor 11. These blocks of the mobile terminal 10 are connected to each other via a bus 18.

[0016]

The bio-sensor 11 acquired bio-information. The bio-information quantitatively indicates motions of organs of a human body, such as a blood pressure, pulsation, brain wave, etc. The bio-sensor 11 is provided on and in the mobile terminal 10. For example, a clinical thermometer, pulse meter, sudorometer and the like are provided on the mobile terminal 10 at the portion to be gripped. An accelerometer, vibration meter and the like are provided inside the mobile terminal 10. A respirometer is provided at the microphone of the mobile terminal 10.

[0017]

Also, the bio-sensor 11 is provided in a place remote from the mobile terminal 10, such as part of the user's body, furniture or the room. With the bio-sensors being thus installed in such different places, a wider variety of bio-information can be acquired.

[0018]

The bio-sensors 11b installed at parts of the user's body include a rheometer, electroencephalograph, eye movement sensor, electrocardiograph, oscillation gyroscope, acceleration sensor, skin temperature sensor, body motion acceleration sensor, skin conductivity sensor, pulse meter, blood-pressure meter, respiration sensor, pupil diameter sensor, tilt sensor, blood oxygen saturation sensor, etc. The rheometer emits infrared rays to the user's body and detects reflected infrared rays to measure the blood flow in the brain and blood oxygen level. The electroencephalograph measures the brain waves such as α-wave, β-wave, etc. on the basis of a current flowing through the brain. The eye movement sensor is mounted on the user's head to measure the frequency component of an eyeball movement on the basis of a potential in the head. The electrocardiograph measures the user's heart rate on the basis of a current generated by the cardiac muscle. The oscillation gyroscope measures the breast motion and breathing rate on the basis of an angular velocity. The skin temperature sensor measures the bodily temperature. The skin conductivity sensor measures the sweating rate on the basis of the skin electric resistance. The respiration sensor is wound on the user's chest to detect a voltage variation caused by the respiration. The tilt sensor measures the body posture on the basis of a tilt of each body portion.

[0019]

Also, the bio-sensors 11a to be provided on furniture or floor includes a thermograph, body motion sensor, respirometer, pulse meter, etc. The bio-sensor 11 installed on the sofa, bed or the like extracts a pulse, respiration and body motion on the basis of a pattern of pressure variation caused by the body motion and conveyed via an elastic material on the sofa or bed. The thermograph measures a distribution of the body temperature by means of infrared sensors. The bio-sensors 11c to capture an image and speech of the person include a camcorder and microphone. The camcorder can determine a motion of the person, change of the facial expression, movement of the eye balls. The microphone collects speech of the person. These bio-sensors 11 send bio-information measured by infrared rays or radio to the mobile terminal 10.

[0020]

The environment information sensor 12 measures information on the environment around the person. The environment information sensor 12 includes a brightness sensor, gas sensor, thermometer, barometer, altimeter GPS (global positioning system), etc. The brightness sensor measures the brightness around the person, and gas sensor detects odor. The GPS uses radio waves from a satellite to measure the latitude and longitude of a position where the person exists. The mobile terminal 10 can also acquire environment information via the network 100. Environment information acquired via the network 100 includes weather forecast, lunar age, amount of snow cover, amount of rainfall, atmospheric contamination, wind velocity, etc.

[0021]

The communications interface 16 sends bio-information acquired by the bio-sensor 11 and environment information acquired by the environment information sensor 12 to the image display device 20. The information sending via the communications interface 16 is controlled by the CPU 15. The CPU 15 executes a program for transmission of bio-information and environment information as a background program, and is triggered by a timer setting to output an instruction signal to the communications interface 16.

[0022]

The image display device 20 generates an image representing the person's condition on the basis of the bio-information and environment information received from the mobile terminal 10. The image display device 20 may be either a device including a display screen and information processor, such as a TV, mobile phone, personal computer or the like, or a dedicated display device.

[0023]

FIG. 3 shows the internal construction of the image display device 20. As shown, the image display device 20 includes an input unit 21 to accept a key-input by the user, sound output unit 22 to provide a speech as an output, display unit 23 to display an image, ROM 24 to store programs and information on settings, RAM 25 as a work area of a CPU 29, device driver 26 to read information from a recording medium, communications interface 27 to make data communications according to an internet protocol, and an image storage unit 28 to store images. These blocks are connected to each other via a bus 200.

[0024]

The CPU 29 roughly estimates an emotion and motion of the person on the basis of bio-information to generate an image representing the condition of the person. The image thus generated is resulted from abstraction and symbolization of the person's condition. That is, the image generated by the image display device 20 roughly represents an emotion and motion of the person but does not provide any real representation. According to the present invention, an image of the person is vaguely generated and casually displayed.

[0025]

An example of the image generation will be explained hereinbelow. It should be noted that the person is depicted as a fish. The image storage unit 28 stores a program to generate an image from bio-information and environmental information, and a plurality of fish images representing the conditions of the person. The image fishes are, for example, a biting fish, swiftly swimming fish, sleeping fish and the like. Also, the image storage unit 28 has a plurality of background images stored therein. The background images include images of clear water, turbid water, strong flow of water, underwater at night, etc.

[0026]

The CPU 29 estimates the person's condition from bio-information and environment information to select a fish image that represents the person's state. The method of estimating the person's condition will be explained hereinbelow. The conditions of a person include emotion such as joy, anger, sorrow and pleasure, sensation such as comfort and discomfort, motions such as eating, moving, sleeping, etc.

[0027]

The emotion, sensation and motion can be estimated in various manners. For example, emotions such as astonishment, fright and uneasiness can be estimated based on a skin resistance. Also, when a person is found to have an elevated heart rate and bodily temperature and his electrocardiogram shows a higher frequency, it can be estimated that he feels "joy". In addition, it is well known that when a person in a mental and psychological stability, he will have a peripheral-vessel dilatation and the arterial blood flow into the peripheral blood vessels so that the heart rate and pulse will change slowly and bodily temperature have a tendency to be higher. Further, in case a person is mentally and psychologically nervous, he will have a peripheral-vessel constriction and the arterial blood flow decrease so that the heart rate and pulse will increase and bodily temperature have a tendency to be lower. Emotions such as anger, sorrow, etc. can be evaluated by using, in combination, these physiological indices, facial-expression recognition based on myogram representing changes of facial expression and images of the face, posture recognition with the acceleration sensor and tilt sensor, speech recognition, etc.

[0028]

One example of the method of estimating the emotion, sensation and motion has been explained above. For a more accurate estimation, however, it is of course that a plurality of sensors should desirably be used to acquire a plurality of bio-information.

[0029]

Next, the estimation of motions will be described. A motion of a person can be estimated based on images captured by, for example, a camcorder. Camcorders are provided on the person's head and at a corner of a room. The CPU 15 can estimate a motion of an object around a person or the person himself on the basis of images captured by the camcorders. A motion of the person can also be estimated from a position where he is. For example, it is highly probable that a person at his office is working, a person in the hospital is feeling sick, a person in the gym is exercising and a person in the restaurant is taking a meal. It is difficult to estimate a person's motion when only positional information on him is available. So, the CPU 15 estimates a person's motion on the basis of a combination of bio-information and environmental information on the person. For example, the CPU 15 estimates a person being in the hospital and having a high bodily temperature to be sick, and a person being in the gym and having the bodily temperature gradually elevated to be exercising. Further, the CPU 15 can estimate a person's motion on the basis of sound around the person. In this case, the CPU 15 can estimate an object existing around the person on the basis of the quality and tone interval of the acquired sound and a person's motion by text mining of the person's speech.

[0030]

As having been explained above, the CPU 29 estimates an emotion, sensation and motion of a person, and then generates images corresponding to the condition of the person. Images can be generated in various manners. For example, a table in which person's conditions and images are associated with each other is stored in the ROM 24 and an image stored in the image storage unit 28 is selected according to the table. Also, an object is generated which outputs an image in response to an input of a person's condition such as emotion, sensation or motion. The image thus generated in any of these manners should evoke a corresponding condition of the person. For example, when the person is taking a meal in the restaurant, an image of a fish which is biting will be generated. When the person feels sick, there will be generated an image of turbid water as background and an image of a fish staying deep in the water. When the person is healthy and active, there will be generated an image of clear water as background and a fish which is swimming swiftly. Also, when it is a fine day, bright underwater will be generated as background. When it is a hot day, there will be generated an image of a fish feeling a little dizzy.

[0031]

The CPU 29 delicately controls the fish motion, water movement, number and size of bubbles in water, turbid degree of water, etc. This motion control may be done based on a factor independent of bio-information and environmental information. Also, the CPU 29 automatically generates images irrespective of bio-information and environmental information as the case may be. The automatic image generation will be done when the person refuses the measurement of bio-information on him, no bio-information can be made on him or when the CPU 29 cannot receive any bio-information and environmental information because the transmission channel is in trouble.

[0032]

The CPU 29 controls the display unit 23 to display images thereon. The display unit 23 displays an image representing a condition of the person. It should be noted however that the image is not any real one but a one indefinitely depicting a person's condition. Since the image is an abstract one, it will not deeply intrude on the person's privacy even if it is always displayed but a long-time observation of the image will not be any agony. Also, the display unit 23 displaying a living thing or scenery depicted as such an image may be placed like a photo holding frame or painting frame on the living room wall or furniture. Also, the person's condition can always be known from such an image displayed on the user's mobile terminal.

[0033]

The image displayed on the display unit 23 is not limited to a fish but may be a dog, cat or any other living thing, a computer graphics. The image may be displayed simultaneously with an output of a sample sound or synthesized sound from the sound output unit 22. Images can be selected for display. The image storage unit 28 has various images and sounds stored therein. The image display device 20 can selectively change the image from one to another correspondingly to a user's choice. FIG. 4 shows examples of a screen 23a displaying an image of a fish and a screen 23b displaying an image of a cat. These images are different from each other but are generated based on the same bio-information and environmental information. The image displayed may be a real one like a photo or a deformed one like an animation. In any case, the image should be such an image as will evoke a corresponding condition of the person.

[0034]

The image displayed may be pre-recorded in the image storage device 28 or may be acquired from outside via the network 100 or a recording medium. By acquiring images not stored in the image storage device 28 from outside, it is possible to increase the variation of images that can be displayed and exploit a business of setting such images.

[0035]

As mentioned above, the image display system 1 informs a remote user of a condition of the person. The image representing a person's condition is an indefinite one which will not make the person himself and viewer feel unpleasant. It can broadly represent a person's condition. The image display system 1 provides a system to monitor an old person living in a remote place or a child having gone away from home. Also, the image display system 1 can represent a change of a person's condition with an image not any real one.

[0036]

The image display system is intended to represent a person's condition by an image and inform a remote user of the person's condition. This image may be provided as an ornamental one that can be used for entertainment.

[Second Embodiment]

[0037]

Next, an example of the image display system in which a plurality of images of a person is displayed on a single image display device 20. In this example, a server 30 exists in a network 100, which are connected to a plurality of mobile terminals 10. The server multiplexes the bio-information and environmental information received from the mobile terminal 10 and transfers them to the image display device 20.

[0038]

The image display device 10 receives a multiplexed packet and separate multiplexed data based on the basis of the ID of the person, and then arranges information in a time series on the basis of a time stamp. The image display device 10 generates an image indicating the condition of each person, and displays the generated image on the display unit. The image generation is explained in the first embodiment. In the example in FIG. 5, three persons carry the mobile terminals 10a, 10b and 10c, respectively, and the three mobile terminals 10a, 10b and 10c send bio-information and environmental information to the server 30. The server 30 multiplexes the received bio-information and environmental information, and sends the multiplexed information to the image display device 10. The image display device 10 generates images indicating the conditions of the three persons and displays the generated images on the single display unit 23.

[0039]

The multiplexed information includes a plurality of packets 40 as shown in FIG. 6. Each of the packets 40 consists of a communication header 41 and data part 42. The communication header 41 stores communication control information such as destination and source addresses. The data part 42 is comprised of a data header 43 and data storage part 44. The data header 43 includes a person ID part 45, time stamp 46 for temporal synchronization, information category code 47 indicative of the category of information, and information type code 48. The information category code 47 indicates which data to be stored in the data storage part 44 is, biological or environmental. The information category code 47 can be extended in case a new information category is measured in future. The information type code 48 indicates which information stored in the data storage part 44 is. For example, a "heart rate", "electromyogram" and "respiration" are indicated with codes "H23", "H24" and "H25", respectively, and a "temperature", "humidity" and "weather" are indicated with codes "K11", "K12" and "K13", respectively.

[0040]

The data storage part 44 stores an actual value of each time indicated in an information type code 48. For example, for an item "pulse″, a numerical value "72" or the like is set in the information type code 48. For item "weather", an actual value or character string indicative of the weather is set in the information type code 48. This field has a variable length. At the top of the data storage part 44, there is set a numerical value indicative of the length of the data storage part itself.

[0041]

In the above example, each of the persons is represented by a pseudo creature, but actually one object or living thing may be represented based on bio-information and environmental information on each person. For example, an engine, tail assembly and main plane of one airplane may be assigned to three different persons, respectively, to represent the airplane being flying. Alternatively, a color, size and bouncing of a ball may be assigned to three different persons to represent the ball being moving.

[Third Embodiment]

[0042]

The image display system 3 may be designed to distribute bio-information and environmental information of a specific person to an unspecified number of image display devices 20. In this case, the image display system 3 includes a bio-information acquiring device 50 to measure bio-information and environmental information on the person, server 60 to send the bio-information and environmental information to many image display devices 20, and an image display device 20 to generate images on the basis of the bio-information and environmental information, as shown in FIG. 7.

[0043]

The bio-information acquiring device 50 is almost the same in construction as the aforementioned mobile terminal 10. In the image display system 3, since personal information on an individual under measurement is distributed to many other persons, the bio-information acquiring device 50 is not always carried like the mobile terminal but should desirably be installed in a relatively highly public space. Of course, the personal information on the individual may be distributed so if he permits it.

[0044]

The image display system is used to distribute bio-information and environmental information on a musician playing at a concert or an athlete in action. The distribution of the bio-information and environmental information on the musician or athlete will permit one being at work and not able to actually watch a sport to roughly know the developments of the game and observe changes in emotion of the athlete, which are not viewable by a video replay.

[Fourth Embodiment]

[0045]

Next, there will be described an image display device 20 that is not to reproduce the measured bio-information and environmental information on the real-time basis but to generate images on the basis of bio-information and environmental information already measured. The existing bio-information and environmental information are recorded in a bio-information storage server 70 or a recording medium 80 such as a CD-ROM or semiconductor memory module in the network

100, as shown in FIG. 8. The image display device 20 generates images on the basis of these bio-information and environmental information. Thus, the user can enjoy the same image many times. Also, bio-information and environmental information can be measured in advance and displayed any time unless time presses. For example, bio-information on a person can be recorded and his look may be reproduced as a symbol image at any time after his death.

[Brief Description of the Drawings]

[0046]

[Fig. 1] It is a schematic diagram of an image display system.

[Fig. 2] It is a block diagram of a hand-held device or personal digital assistant.

[Fig. 3] It is a block diagram of an image display device.

[Fig. 4] It is a diagram of a procedure for generating different images from the same bio-information and environmental information.

[Fig. 5] It is a schematic diagram of an image display system according to the second embodiment.

[Fig. 6] It is a configuration of multiplexed data.

[Fig. 7] It is a diagram of an image display system according to the third embodiment.

[Fig. 8] It is a diagram of an image display system according to the fourth embodiment.

[Description of the Reference Numerals and Signs]

[0047]

1: IMAGE DISPLAY SYSTEM, 10: MOBILE TERMINAL, 11: BIO-SENSOR, 12: ENVIRONMENT INFORMATION SENSOR, 13: ROM, 14: RAM, 15: CPU, 16: COMMUNICATIONS INTERFACE (I/F), 17: BIO-INFORMATION RECEIVER, 20: IMAGE DISPLAY DEVICE, 21: INPUT UNIT, 22: SOUND OUTPUT UNIT, 23: DISPLAY UNIT, 24: ROM, 25: RAM, 26: DEVICE DRIVER, 27: COMMUNICATIONS INTERFACE, 28: IMAGE STORAGE UNIT, 29: CPU, 50: BIO-INFORMATION ACQUIRING DEVICE, 60: SERVER, 70: BIO-INFORMATION STORAGE SERVER, 80: RECORDING MEDIUM

[Designation of Document] Abstract

[Abstract]

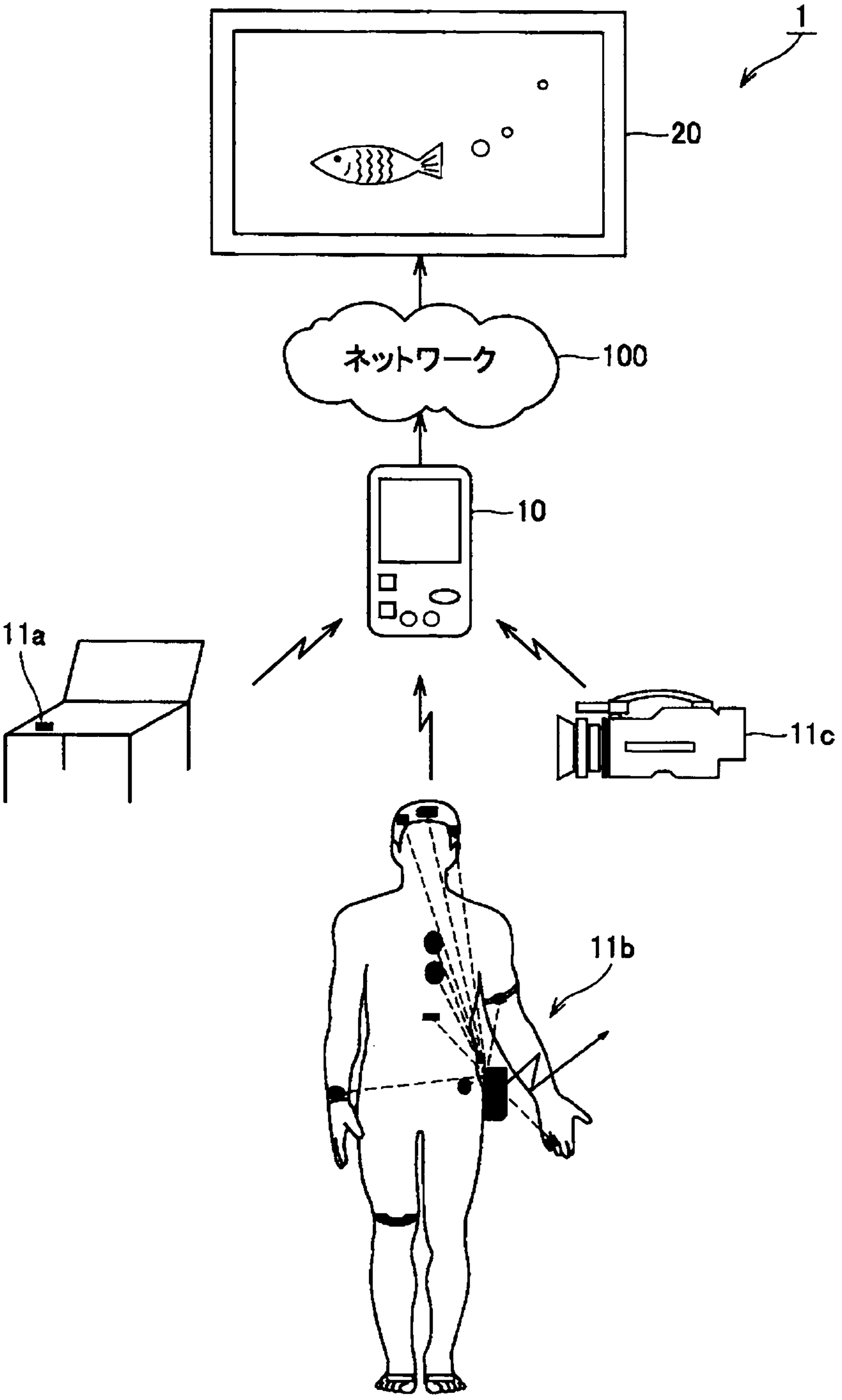
[Problem] Representing the condition of a person indefinitely.

[Means for Resolution] A person under measurement carries a mobile terminal 10. The mobile terminal 10 includes a bio-sensor 11 to detect bio-information on the person and an environmental information sensor 12 to acquire information on the environment around the person. The mobile terminal 10 sends the acquired information to an image display device 23. The image display device 20 includes a CPU 29 that judges the condition of the person on the basis of bio-information and environmental information, generates an image representing the condition of the person and displays the image on a display unit 23.

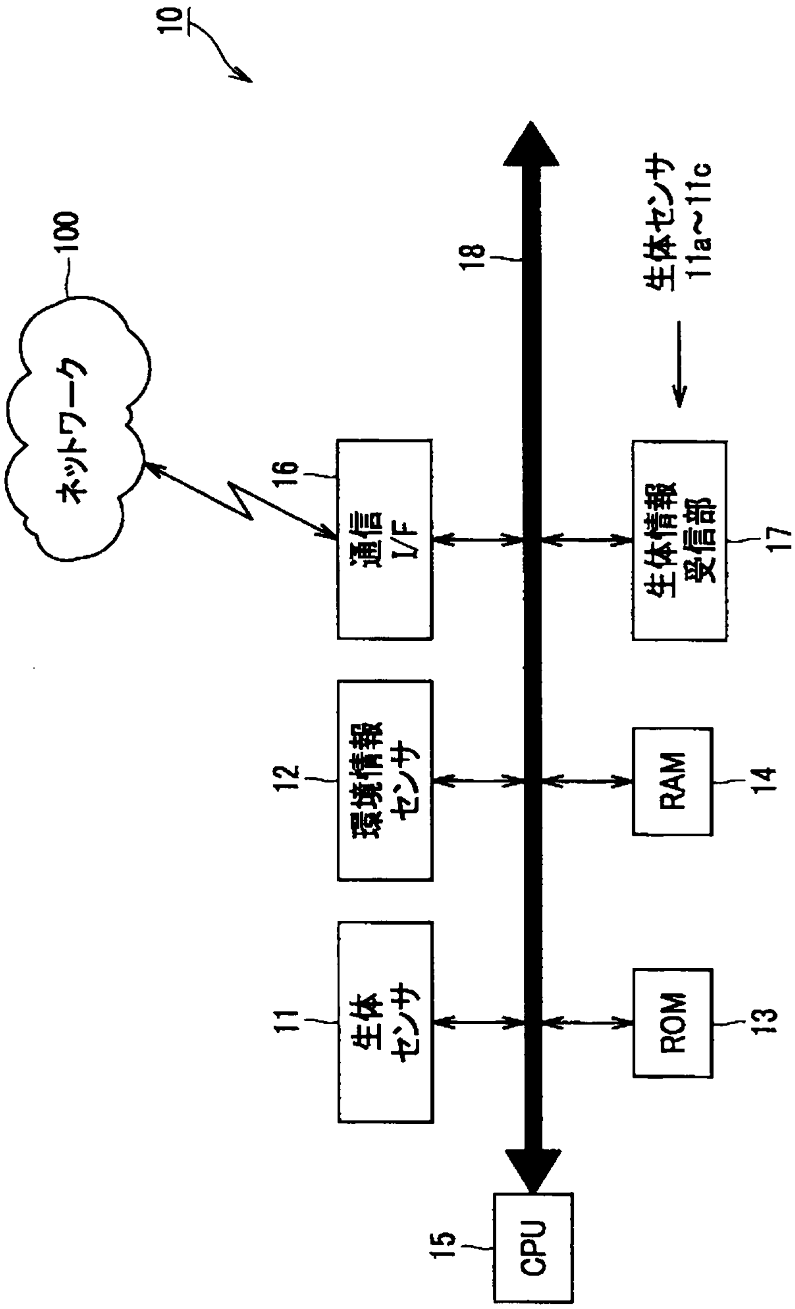
[Selected Drawing] Fig. 1

[Designation of Document]   Drawings

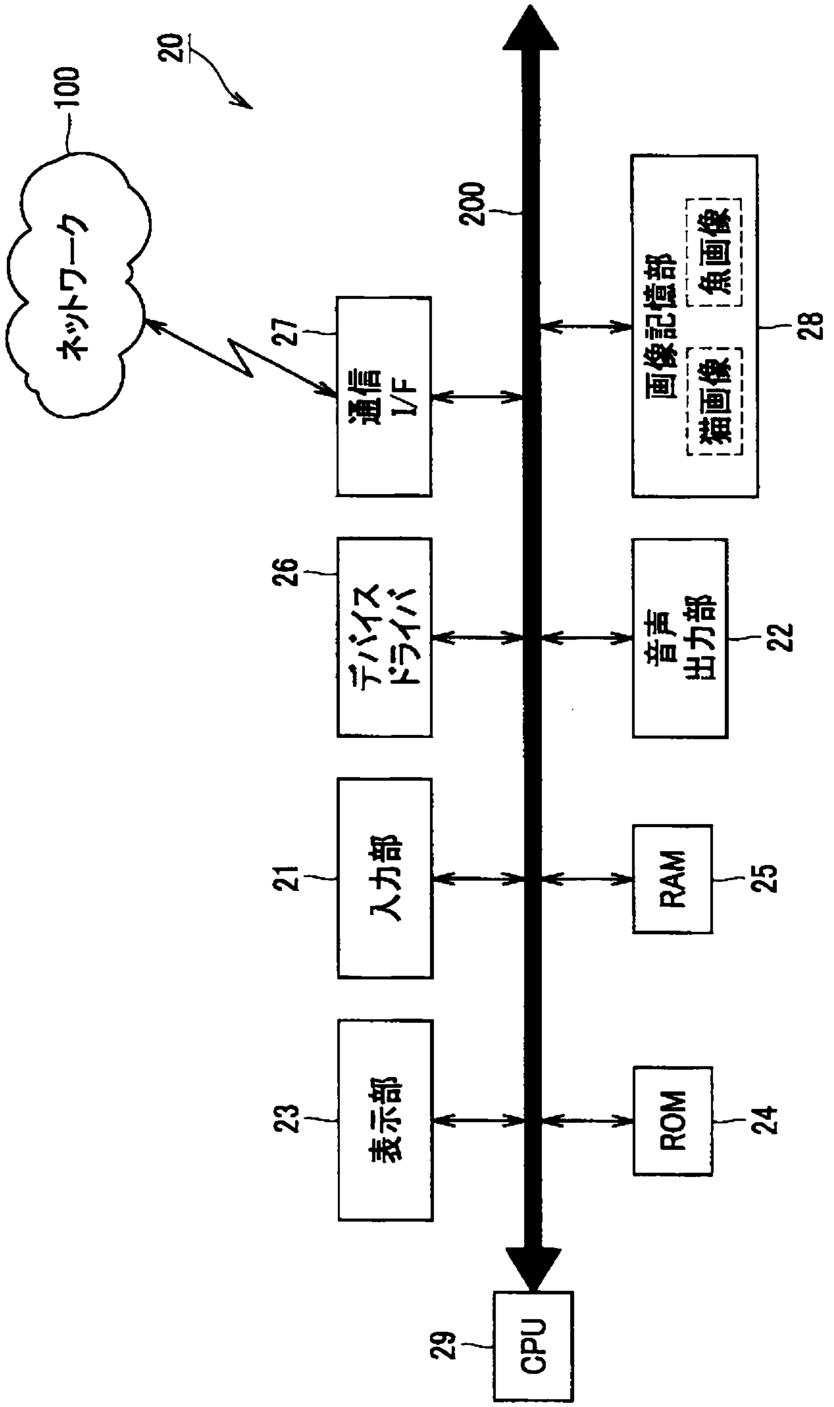
[FIG. 1]


1
20
ネットワーク
100
10
11a
11c
11b

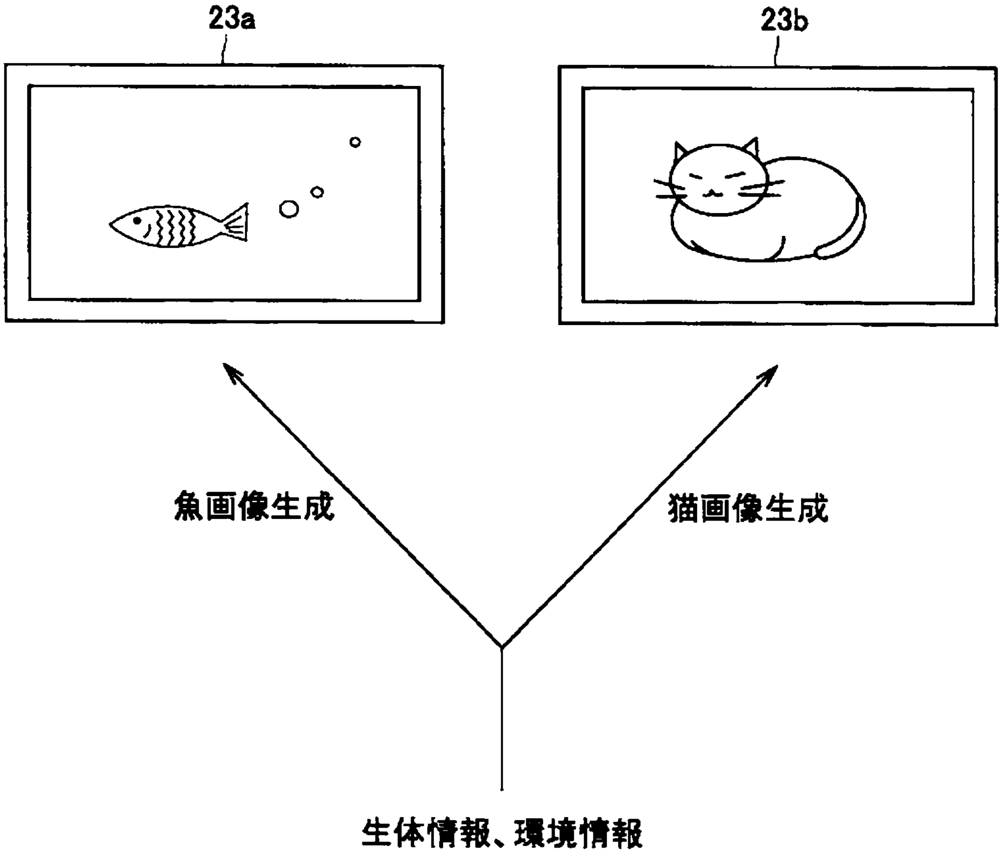
[FIG. 2]


10
100
ネットワーク
16
通信 I/F
18
生体センサ 11a~11c
生体情報受信部
17
12
環境情報センサ
RAM
14
11
生体センサ
ROM
13
15
CPU

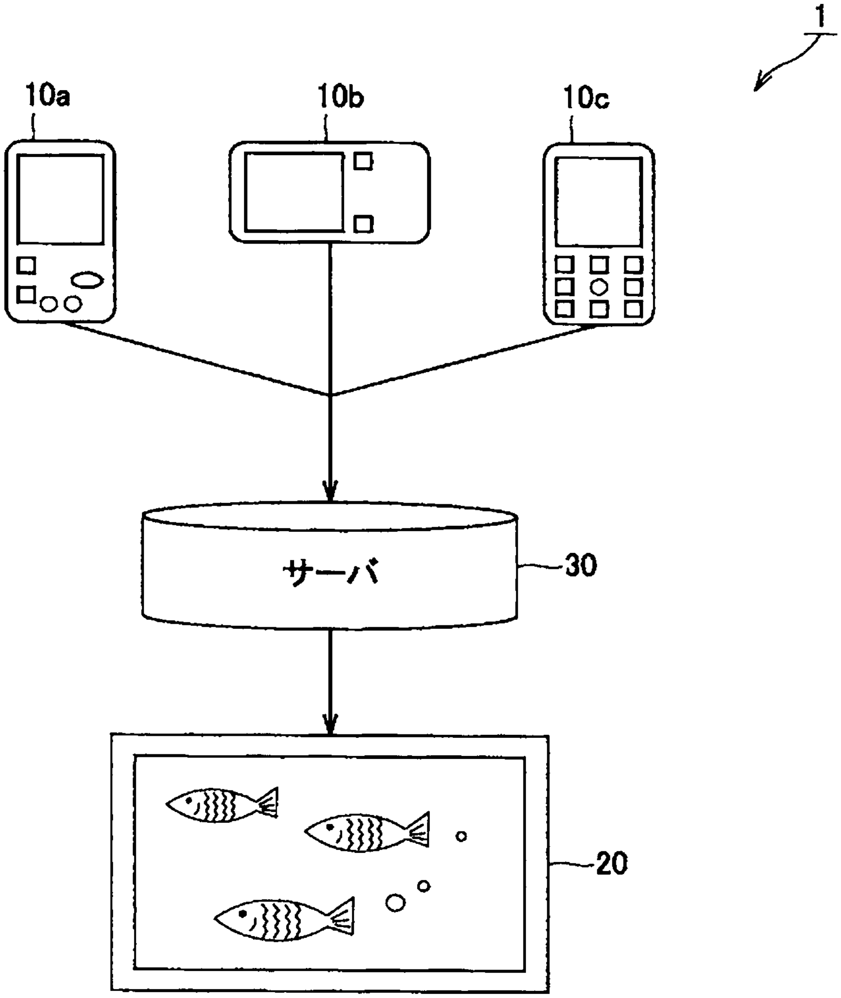
[FIG. 3]


20
100
ネットワーク
200
27
通信
I/F
28
画像記憶部
猫画像
魚画像
26
デバイス
ドライバ
22
音声
出力部
21
入力部
25
RAM
23
表示部
24
ROM
29
CPU

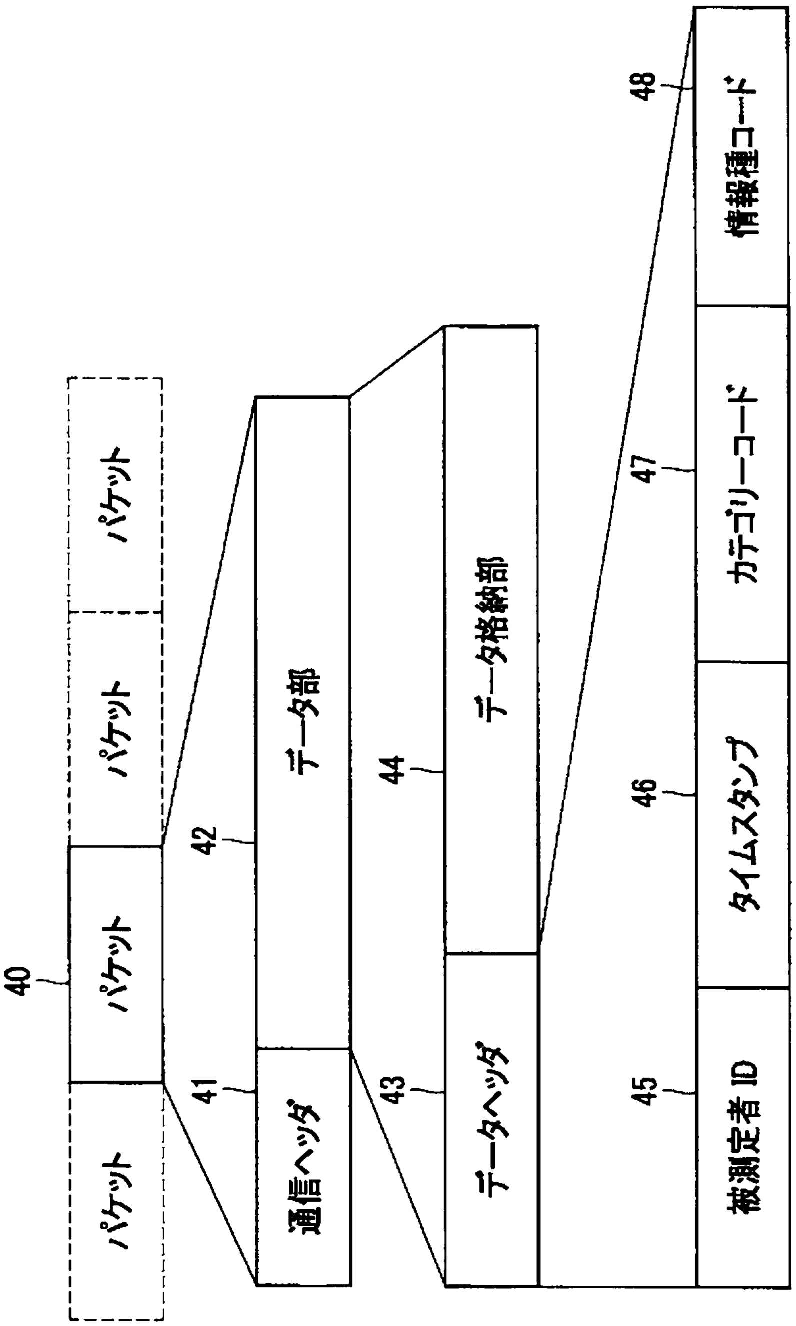
[FIG. 4]


23a
23b
魚画像生成
猫画像生成
生体情報、環境情報

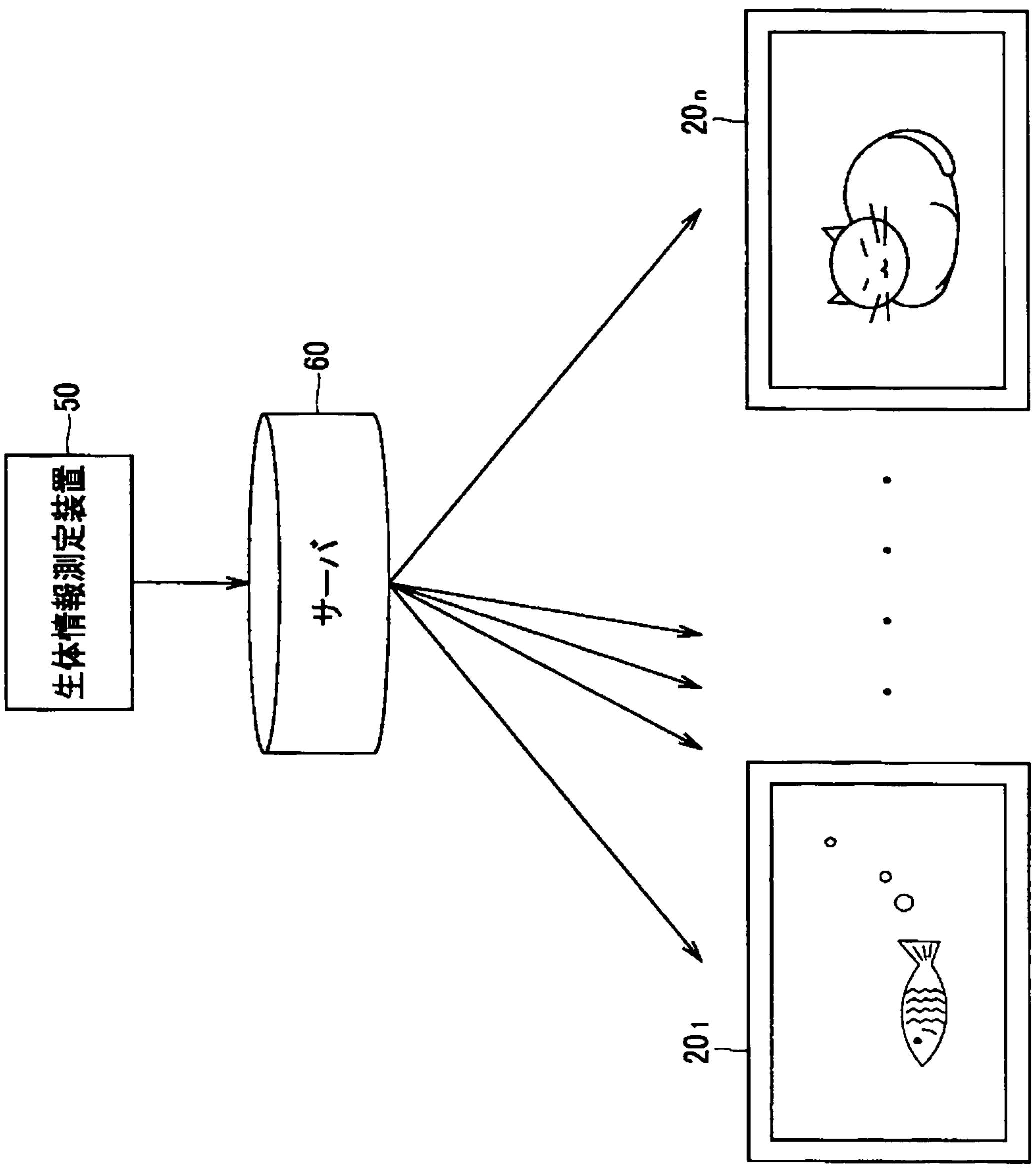
[FIG. 5]


1
10a
10b
10c
サーバ
30
20

[FIG. 6]


40
パケット
パケット
パケット
パケット
41
通信ヘッダ
42
データ部
43
データヘッダ
44
データ格納部
45
被測定者 ID
46
タイムスタンプ
47
カテゴリーコード
48
情報種コード

[FIG. 7]



生体情報測定装置
50
サーバ
60
20n
201

[FIG. 8]

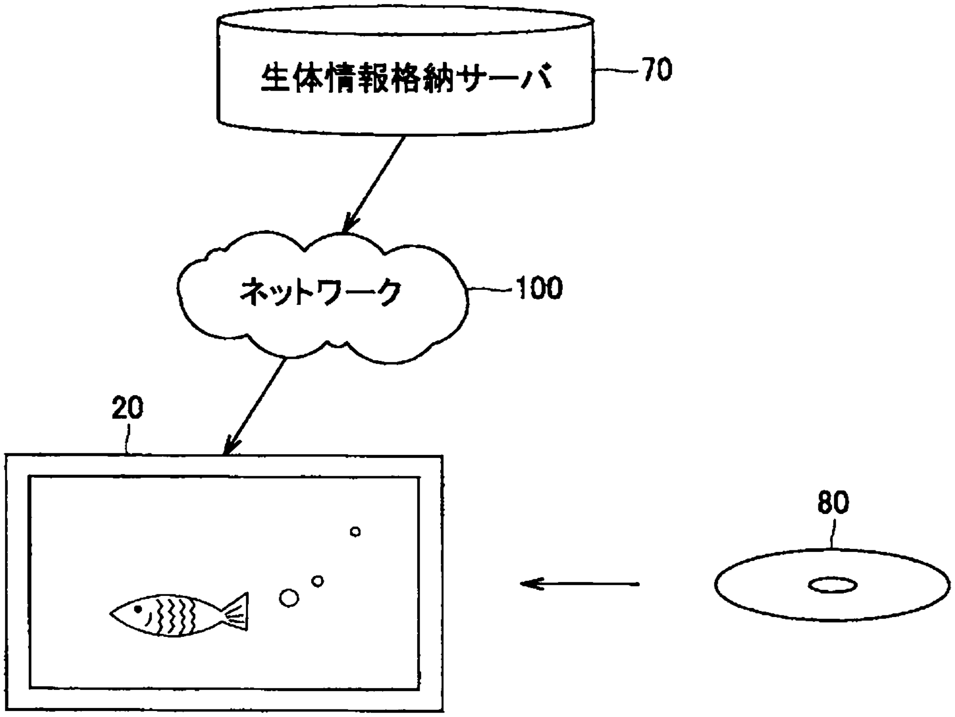

生体情報格納サーバ
70
ネットワーク
100
20
80

FIG. 1
100: NETWORK

FIG. 2
100: NETWORK
11: BIO-SENSOR
11a - 11c: BIO-SENSOR
12: ENVIRONMENT INFORMATION SENSOR
13: ROM
14: RAM
15: CPU
16: COMMUNICATIONS INTERFACE (I/F)
17: BIO-INFORMATION RECEIVER

FIG. 3
100: NETWORK
21: INPUT UNIT
22: SOUND OUTPUT UNIT
23: DISPLAY UNIT
24: ROM
25: RAM
26: DEVICE DRIVER
27: COMMUNICATIONS INTERFACE (I/F)
28: IMAGE STORAGE UNIT
CAT IMAGE FISH IMAGE

29: CPU

FIG. 4

23A: GENERATING FISH IMAGE

23B: GENERATING CAT IMAGE

BIO-INFORMATION

ENVIRONMENT INFORMATION

FIG. 5

30: SERVER

FIG. 6

40: PACKET

41: COMMUNICATION HEADER

42: DATA PART

43: DATA HEADER

44: DATA STORAGE PART

45: PERSON ID PART

46: TIME STAMP

47: CATEGORY CODE

48: INFORMATION TYPE CODE

FIG. 7

50: BIO-INFORMATION ACQUIRING DEVICE

60: SERVER

FIG. 8

70: BIO-INFORMATION STORAGE SERVER

100: NETWORK